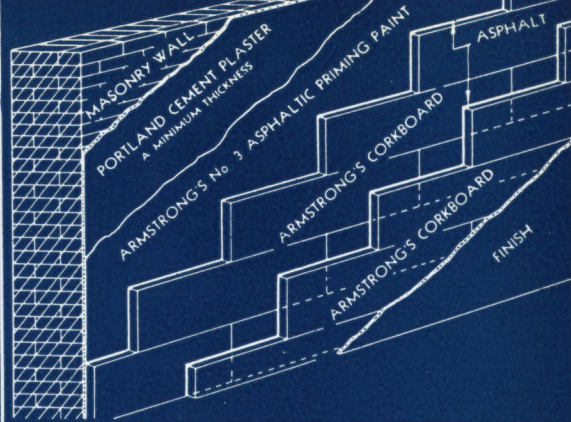
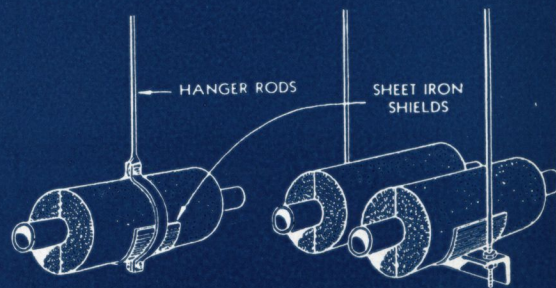


ARMSTRONG'S INSULATION AND INTERIOR FINISHES



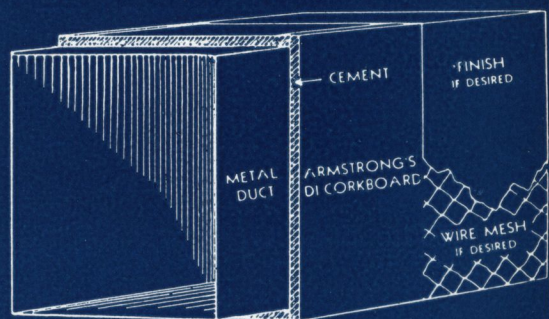
CORKBOARD



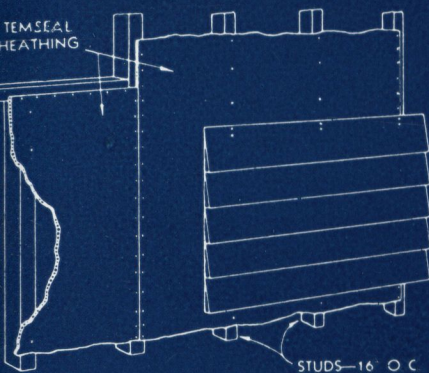
STRAP HANGER

TRAPEZE HANGER

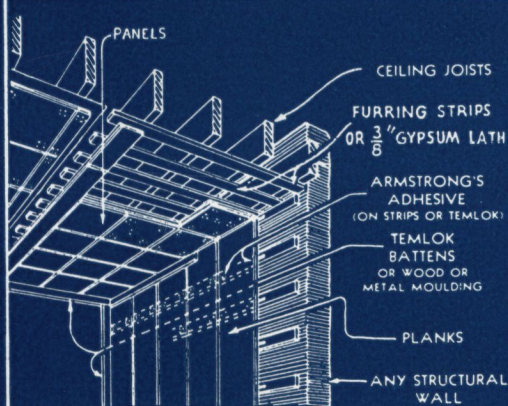
CORK COVERING



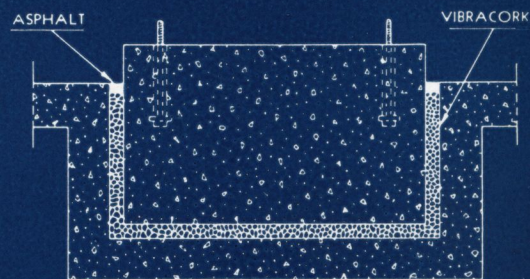
DI CORKBOARD



TEMLOK



TEMLOK DELUXE



VIBRACORK

ARMSTRONG CORK COMPANY

BUILDING MATERIALS DIVISION . . . LANCASTER, PENNSYLVANIA

THE ARMSTRONG CORK COMPANY

SINCE 1902, Armstrong has been a leader in the low temperature insulation field. The Company maintains extensive research facilities, and experimental and development work carried on during the past 36 years has insured users of Armstrong's Insulation maximum value and efficiency. The Company's broad experience, superior manufacturing facilities and ability, strict adherence to high standards of quality, engineering service, and constant research assure complete dependability of its substantial variety of products.

In a number of cases, installations of corkboard made 20, 25, or 30 years ago are still serving efficiently. This record of long and satisfactory service is perhaps the best evidence that corkboard provides a margin of extra value which means true economy for the owner over a period of years. It successfully meets severe service requirements.

Armstrong is the oldest manufacturer of corkboard insulation in this country. The Company also is widely known as the manufacturer of Armstrong's Linoleum. For catalog on Armstrong's Floor and Wall materials, refer to File Index.

SERVICE TO ARCHITECTS

A technical service department at the Company's main offices, in Lancaster, Pennsylvania provides architects with information relating to the properties, characteristics, and varied uses of Armstrong's Insulation products. Complete testing laboratories are also maintained at Lancaster. Any special problems in thermal insulation, acoustical correction, or vibration damping may be referred here without charge or obligation.

AVAILABLE LITERATURE

For more complete information on the various Armstrong's Insulation products and their application, write to the ARMSTRONG CORK COMPANY, Lancaster, Pa., or get in touch with a near-by office or distributor (see list on back cover). The catalogs listed below are available without charge and will be sent on request.

Armstrong's Corkboard Insulation for Cold Storage Rooms
Armstrong's Corkboard Insulation for Walls and Roofs
Armstrong's Cork Covering for All Cold Lines
How to Lessen Vibration with Armstrong's Vibracork.
Armstrong's Temlok Building Insulation Specifications (A.I.A. File 37-A-I)
Colorful Finishes That Decorate and Insulate—(Temlok De Luxe)
How to Reduce Noise or Improve Hearing Conditions (see File Index of this volume—
Acoustical Section)

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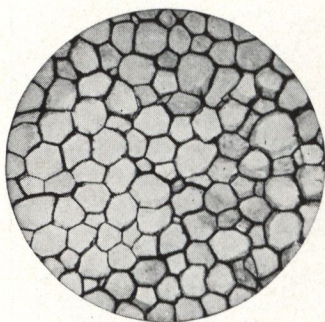
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ARMSTRONG'S CORKBOARD INSULATION FOR WALLS, ROOFS, AND DUCTS

Physical Characteristics of Corkboard

Armstrong's Corkboard Insulation is made from pure cork ground into medium coarse granules, cleaned, compressed, and then bonded and sterilized by heat without the use of any foreign binder to form solid slabs of standard thicknesses and dimensions (see below). This baking process produces a tough, strong, homogeneous board that is inherently resistant to moisture, fire, and decay.

Thermal conductivity of Armstrong's Corkboard is .27 (B. t. u. per hr., per 1" thickness, per degree F.) at 60° F. mean temperature. (*) Its corresponding resistivity is 3.70. As with all insulating materials, the thickness of corkboard necessary for effectiveness in preventing heat losses and condensation varies with the type of construction and conditions under which it is used.



Photomicrograph showing the cellular structure of cork, the outer bark of the cork oak tree. This natural insulator is made up of millions of tiny cells each holding a minute quantity of still air. These cells sealed by nature effectively retard the passage of air and moisture.

Moisture- and Fire-Resistance. Inherently non-absorbent because its minute individual cells are naturally sealed, Armstrong's Corkboard is highly resistant to the effects of the water and air-borne vapor that are always present in moderate or low temperature insulation service. It meets the rigid standards of Federal Specification for Compressed Cork HH-C-561 and maintains insulating efficiency without disintegrating. (★)

When exposed to flames, surface charring is produced which checks the spread of fire. Combustion ceases when the flame is removed. Armstrong's Corkboard cannot take fire from sparks or embers. In case of fire it protects the building frame.

Strength and Stability. The high strength, stability, and long life of Armstrong's Corkboard are indicated by laboratory tests and by actual performance in the field, the material lasting in many cases for more than thirty years.

Plaster applied directly on corkboard takes a strong bond because of the mechanical key. The same key gives extraordinary bonding qualities with asphalt, pitch, or similar finishes.

(*) Average of independent identical tests conducted under auspices of the Cork Institute of America by Pittsburgh Testing Laboratories and Pennsylvania State College. See "Low Temperature Insulation" published by Cork Institute of America. Formerly rated at .30 as in A.S.H.V.E. Guide based on earlier tests at 90° F.

(★) Federal Specification HH-C-561 Cork; Compressed (corkboard) requires insulation to withstand boiling for three hours at atmospheric pressure without disintegrating and without expanding more than 2% in any direction. When this test is made on Armstrong's Corkboard, it is found to be dry inside at the conclusion of the test. Corkboard is the only insulation that remains dry under this severe test. Of course, no insulation will be subjected to such a condition in use; the test is designed to concentrate in a short time moisture conditions that ordinarily would extend over a long period of use under severe service conditions.

Workability. Armstrong's Corkboard can be nailed in place or erected in portland cement mortar, asphalt, or other adhesives. The material weighs .65 lb. per board ft., is convenient to handle, and can be cut, shaped, or sanded as required.

Cost and Uses

Armstrong's Corkboard is a building insulation material of high quality and durability. It may serve also as a plaster base, or, in modern decoration, as an interior finish, thus performing two functions at one cost.

Recommended uses include: (1) *Roof deck insulation*, particularly under built-up roofing to prevent condensation, conserve heat, or to reduce cooling costs. (2) *Floor and sidewall insulation* applied direct to masonry where no hydrostatic pressure exists. Masonry must be waterproofed. Particularly effective for eliminating surface condensation. (3) *Sidewall and attic insulation* in new or existing buildings where high quality, long life insulation is indicated. (4) *Air conditioning duct work insulation* applied direct to metal ducts to reduce heating losses and cooling loads and to prevent condensation. (5) *Low temperature room insulation*, such as wine and fur storage vaults, refrigerators, cold storage rooms, etc. Send for special data on low temperature insulation or see pages 5 to 8.

A special form of corkboard, Armstrong's Corkoustic, is available for sound deadening. Another form, Armstrong's Vibracork, lessens the transmission of vibration. See pages 11 and 12 for description and methods of use.

Armstrong's Cork in other forms is also used for low temperature pipe coverings, cylindrical tanks and other similar purposes. See pages 9 and 10 for details.

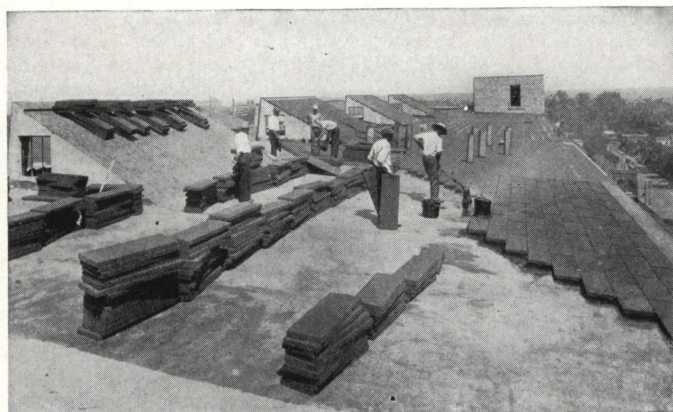
Cost of Armstrong's Corkboard is soon repaid through reduction in heating and cooling loads and gain in comfort. The use of Armstrong's Corkboard is indicated in enduring construction and high quality buildings, and wherever service conditions are severe.

Sizes

Armstrong's Corkboard is made in the following standard sizes and thicknesses. Special sizes and shapes on order.

Lengths and Widths: 12"x32"; 12"x36"; 18"x36"; 24" x 36"; 36"x36".

Thicknesses: 1"; 1½"; 2"; 3"; 4"; 6".



Applying corkboard insulation on a factory roof to prevent condensation of moisture in slab or on ceiling below.

ARMSTRONG'S CORKBOARD INSULATION FOR WALLS, ROOFS, AND DUCTS

APPLICATION METHODS

General. Armstrong's Corkboard Insulation can be applied to frame or masonry walls; to wood, concrete, and steel surfaces of flat or pitched roof decks; and to exterior surfaces of metal ducts. Boards should be butted tightly and joints broken in successive rows. When installing multiple layers of corkboard, each layer should break joint with that beneath.

Insulation should run continuously over surfaces and should be carefully fitted between obstructions such as joists and rafters.

Concrete or Steel Roof Decks. Lay corkboard directly in a hot mopping of asphalt or pitch over a 2-ply waterproofing course. Cutoffs of two plies of waterproofing fabric should be applied every 25 feet to overlap the corkboard at least 4" and extend at least 6" on the roof deck. Roofing can be any approved built-up type. Apply roofing as soon as insulation is in place.

Wood Roof Decks. On flat decks apply corkboard preferably with hot asphalt or pitch over a waterproofing course consisting of one layer of resin-sized sheathing and two plies of tarred felt. Built-up roofing of any suitable type can cover the insulation. On pitched roofs, apply corkboard to underside of rafters if practicable. Otherwise, nail over sheathing and apply layer of waterproofing felt over the corkboard. With thicknesses not over 1", shingles or slate or tile roofing may be nailed to roof through the corkboard. With greater thicknesses, nailing strips should be applied over the insulation to secure shingle, slate, or tile roofing.

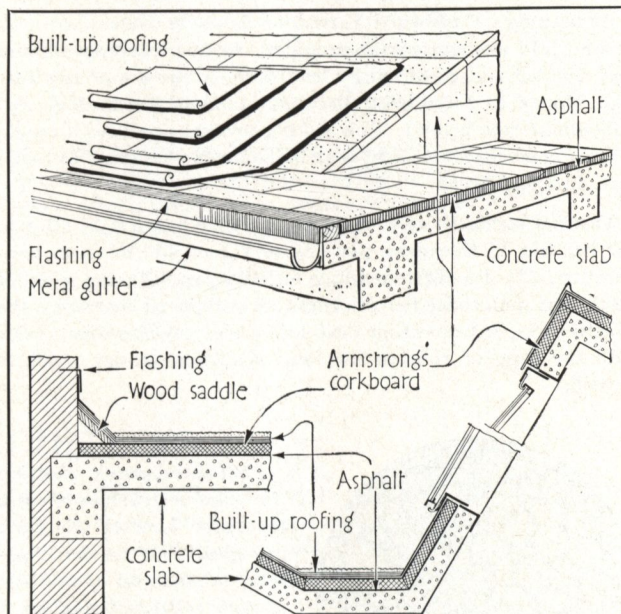
Metal ducts must be thoroughly cleaned. Dip corkboard in hot asphalt, apply to duct and support it in place with bands or wires tightly drawn around sheet metal corner angles on 9" centers. When required, for appearance or protection from abrasion, exposed surfaces may be finished with portland cement plaster or plastic asphalt, such as Armstrong's Asphaltic Plastic Finishes. See drawing at lower right.

Masonry Walls. Anchor grounds permanently to masonry by standard attachments (expansion bolts, wall plugs, etc.) so that ground faces are flush with corkboard surface. Set conduits flush into walls to prevent cutting out corkboard. Set plumbing and electrical outlets and detail window and door frames in accordance with extra wall thickness due to insulation. Masonry surfaces should be prepared for bonding with cement mortar and should be dampened as required to reduce absorption. Apply $\frac{1}{2}$ " stiff portland cement mortar (1 cement to 2 sand) to back of corkboard. Spread mortar evenly, keeping edges and face absolutely clean. Use no mortar in joints. Set buttered corkboards against prepared surface and press into place. Finish the exposed surface of the corkboard in accordance with plastering specifications, applying plaster directly on the corkboard.

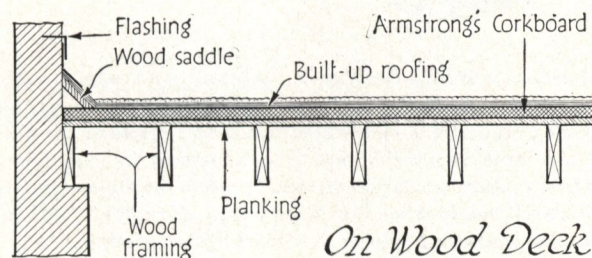
Frame Construction. In new work, nail corkboard to inside face of studs and rafters, spanning two studs with each sheet. Use nails 1" longer than thickness of corkboard, 3 nails to each support. In modernization work or in new work, the insulation can be nailed over sheathing on the exterior of walls and roofs. For stucco finishes, cover corkboard with waterproof paper. Apply portland cement stucco on furred or self-furring metal lath nailed through furring and corkboard to sheathing.

For insulating top-story ceilings, corkboard is normally applied to underside of joists and used as a plaster base. In modernizing, it can be secured to top of joists for economy and convenience.

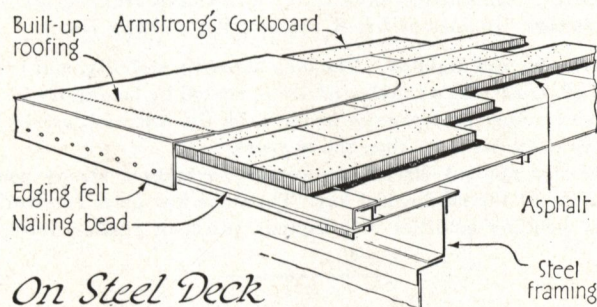
TYPICAL ROOF APPLICATIONS



On Concrete Slabs

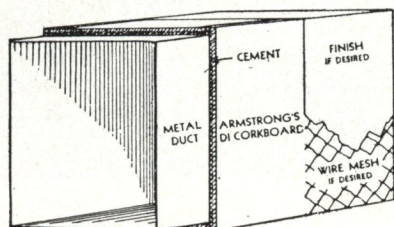


On Wood Deck

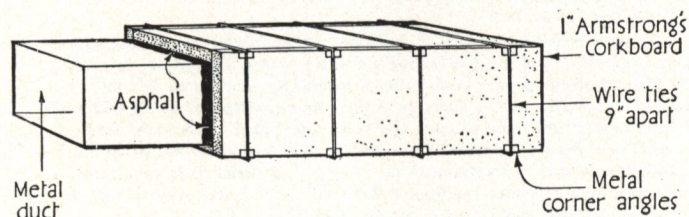


On Steel Deck

DUCT COVERING



Armstrong's DI Corkboard, 12x36x $\frac{1}{2}$ " is intended for insulating ducts to prevent condensation. This flexible, light-weight corkboard may be erected either with adhesives or by banding.



ARMSTRONG'S CORKBOARD INSULATION FOR COLD STORAGE

SPECIFICATIONS

General

Back Plaster. Where the corkboard insulation is to be applied against masonry walls in asphalt, the walls must be made true and even with portland cement plaster, mixed in the proportions of 1 part portland cement, 3 parts clean, sharp sand, and 5% hydrated lime.

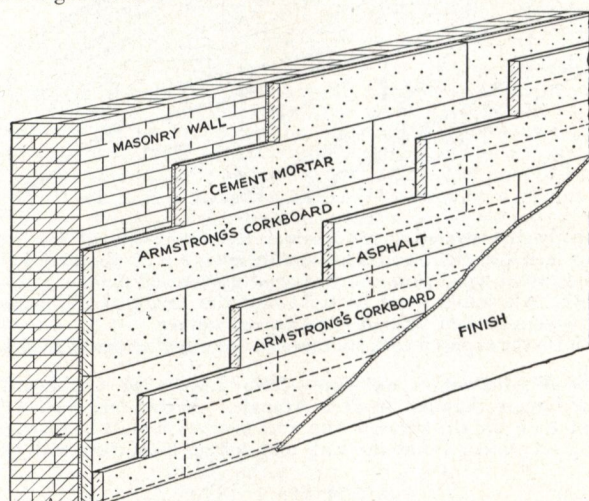
Immediately preceding the application of the plaster, wet the walls evenly with clean water. Apply the plaster in one or more coats to $\frac{1}{4}$ " minimum thickness on all high points and straighten with a straightedge and float it smooth.

Where necessary, the wall surfaces must be roughened or hacked before applying the plaster to insure a good bond.

Asphalt Priming Paint. All brick, concrete, or plastered surfaces to which the corkboard insulation is to be applied in asphalt must be primed with two (2) coats of Armstrong's No. 3 Asphalt Priming Paint, applied with either brush or spray. The surfaces must be thoroughly dry before the priming paint is applied, and the first coat of paint must be allowed to dry before the second coat is applied.

Walls

Masonry Walls—Two Layers of Corkboard—First Layer Applied in Cement Mortar; Second Layer Applied in Asphalt. All masonry wall must be thoroughly cleaned of dirt, dust, loose mortar, etc., and where necessary, roughened or hacked to insure a good bond.

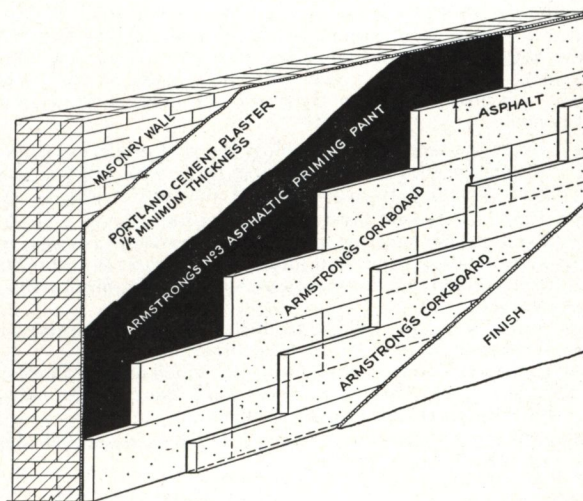


Apply the first layer of Armstrong's Corkboard in a $\frac{1}{2}$ " bed of portland cement mortar, mixed 1 part portland cement and 3 parts clean, sharp sand.

Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length. All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes."
Note: For a single layer of corkboard apply as described above for first layer.

Masonry Walls—Two Layers of Corkboard—Both Layers Applied in Asphalt. All masonry wall surfaces must be thoroughly cleaned of dirt, dust, loose mortar, etc., and, where



necessary, be made true and even as described under "Back Plaster."

After the plaster has dried, prime the wall with two coats of Armstrong's No. 3 Asphalt Priming Paint, as described under "Asphalt Priming Paint."

Apply the first layer of Armstrong's Corkboard directly to this surface in hot asphalt. Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length. All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes."
Note: For a single layer of corkboard apply as described above for first layer.

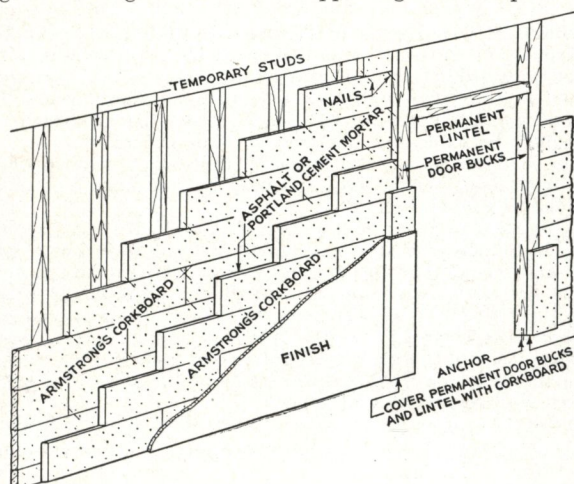
Wood Walls—Two Layers of Corkboard—Both Layers Applied in Asphalt. Directly against the sheathing of the wood walls tack one layer of Armstrong's Asphalt Sheeting or waterproof insulating paper with the edges lapped not less than 3".

Apply the first layer of Armstrong's Corkboard in hot asphalt and secure it to the wood wall with special galvanized nails of proper length. Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length. All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes."

Note: Where only one layer of corkboard is used, apply it as described above for the first layer.

Solid Cork Partitions—Two Layers of Corkboard—Asphalt or Cement Core. Erect temporary 2 x 4 studs on 18" centers in alignment as a guide for the self-supporting solid cork partitions.



Recommended Thicknesses of Corkboard Insulation

ROOM TEMPERATURE	RECOMMENDED PRACTICE
45° and above	2"
35° to 45°	3"
20° to 35°	4"
5° to 20°	5"
-5° to +5°	6"
-20° to -5°	8"

ARMSTRONG'S CORKBOARD INSULATION FOR COLD STORAGE (Continued)

Erect the first layer of Armstrong's Corkboard on edge against the temporary studs. Securely toenail each corkboard to the abutting one, and wherever possible, also to the walls, floor, and ceiling with special galvanized nails of the proper length. All joints must be tight and all vertical joints must be broken.

(a) Erect the second layer against the first one in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of the proper length; or

(b) Erect the second layer against the first one in a $\frac{1}{2}$ " bed of portland cement mortar, mixed 1 part portland cement, and 3 parts clean, sharp sand, and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length.

All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes." Do not remove the temporary studs until the opposite side of the solid cork partition has been finished.

Note: For single layer of corkboard apply as described above for first layer.

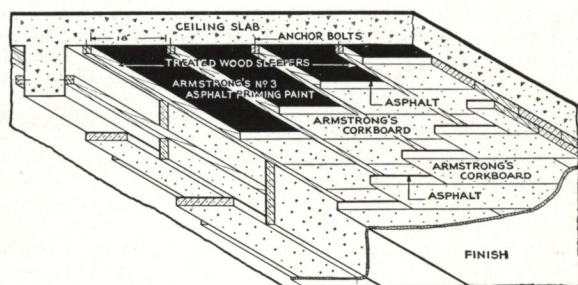
Ceilings

Concrete—Two Layers of Corkboard—First Layer Applied in Cement Mortar; Second Layer Applied in Asphalt. The concrete ceiling must be thoroughly cleaned of dirt, dust, loose mortar, etc., and be roughened or hacked to insure a good bond.

Apply the first layer of Armstrong's Corkboard in a $\frac{1}{2}$ " bed of portland cement mortar, mixed 1 part portland cement and 2 parts clean, sharp sand, and prop it in place until securely bonded to the concrete ceiling slab. Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length. All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes."

Note: For single layer of corkboard apply as described above for first layer.



Concrete—Two Layers of Corkboard—Both Layers Applied in Asphalt. Before any insulation is applied to the ceiling, fasten to the underside of the concrete ceiling slab $1\frac{5}{8}$ " x—(thickness of first layer of corkboard) sleepers with suitable anchors. The anchors and sleepers must be spaced so that the corkboard will fit tightly between, but not greater than 18" apart.

The concrete ceiling slab must be thoroughly cleaned of all dirt, dust, loose plaster, etc., and be primed as described under "Asphalt Priming Paint."

Apply the first layer of Armstrong's Corkboard in hot asphalt between the sleepers and temporarily prop it to insure a good bond and toenail it to the sleepers with special galvanized nails. Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length. Where the second layer crosses the sleepers, nail it with special galvanized nails at each sleeper. All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes."

Note: For single layer of corkboard apply as described above for first layer.

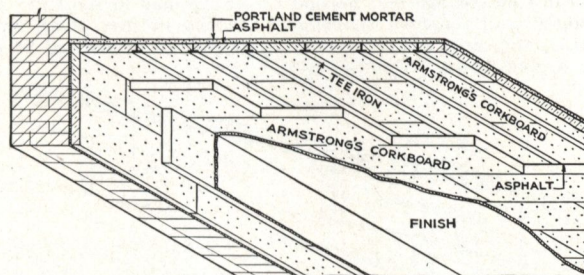
Wood—Two Layers of Corkboard—Both Layers Applied in Hot Asphalt. Directly against the underside of the wood ceiling tack one layer of Armstrong's Asphalt Sheeting or waterproof insulating paper with edges lapped not less than 3".

Apply the first layer of Armstrong's Corkboard in hot asphalt and secure it to the wood ceiling with special galvanized nails. Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length. All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes."

Note: For single layer of corkboard apply as described above for first layer.

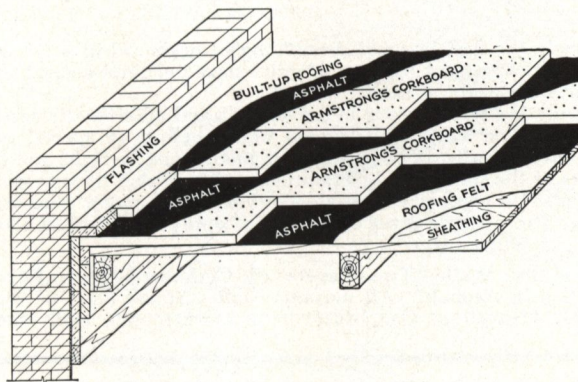
Tee-Iron Construction—Two Layers of Corkboard—First Layer Laid Between Tee-Irons; Second Applied Beneath in Asphalt. Space the tee-irons 12" or 18" apart and securely fasten them at the ends to the walls or other supporting structure. Place the first layer of Armstrong's Corkboard between the tee-irons, notching the edges so that it snugly fits the flanges of the tee-irons. Flood the top surface with a heavy coat of hot asphalt and apply a $\frac{1}{2}$ " or $\frac{3}{4}$ " coat of portland cement mortar mixed 1 part portland cement and 3 parts clean, sharp sand, and screeded off smooth.



Apply the second layer against the underside of the first layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of proper length. All joints must be tight and the joints of the successive layers broken with respect to each other.

Finish the exposed cork surfaces as described under "Finishes."

Wood—(Insulation on Top)—Two Layers of Corkboard—Both Layers Applied in Hot Asphalt. A slot one inch (1") wider than the thickness of the wall insulation must be provided along all walls so that the wall and ceiling insulation will join.



On top of the wood ceiling structure lay one layer of waterproof insulating paper with the edges lapped at least 3" and sealed with hot asphalt. Apply the first layer of Armstrong's Corkboard in hot asphalt. Apply the second layer in hot asphalt. All joints must be tight and the joints of the successive layers broken with respect to each other.

Flood the top surface of the insulation with a heavy coat of hot asphalt; or mop the top surface with hot asphalt and lay one layer of fifteen (15) pound saturated roofing felt in hot

ARMSTRONG'S CORKBOARD INSULATION FOR COLD STORAGE (Continued)

asphalt with all edges lapped and sealed. Tightly seal this membrane along all walls.

Note: (1) For single layer of corkboard apply as described above for first layer.

(2) Construction often used for roofs. The top surface is left uncoated to receive roofing membrane.

Steel Roof Deck—(Insulation on Top)—Two Layers of Corkboard—Both Layers Applied in Hot Asphalt. A slot one inch (1") wider than the thickness of the wall insulation must be provided along all walls so that the wall and ceiling insulation will join.

Apply the first layer of Armstrong's Corkboard in hot asphalt. Apply the second layer in hot asphalt. All joints must be tight and the joints of the successive layers broken in respect to each other.

Flood the top surface of the insulation with a heavy coat of hot asphalt and apply $\frac{1}{2}$ " or $\frac{3}{4}$ " coat of portland cement mortar mixed 1 part portland cement and 3 parts clean, sharp sand, and screeded off smooth; or mop the top surface with hot asphalt and lay one layer of fifteen (15) pound saturated roofing felt in hot asphalt with all edges lapped and sealed. Tightly seal this membrane along all walls.

Note: (1) When only one layer of corkboard is used, apply it as described above for first layer.

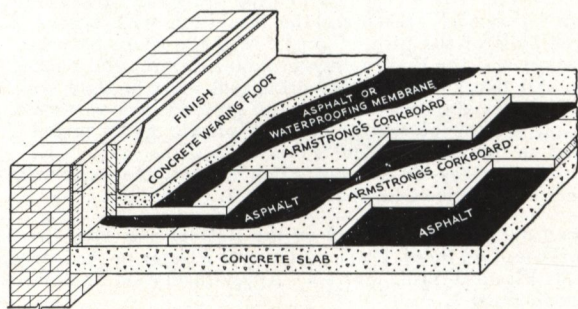
(2) This construction is quite often used for roofs. In such cases the top surface of the insulation is usually left uncoated to receive the built-up roofing membrane.

Floors

Concrete Base—Two Courses of Corkboard—Both Layers Laid in Asphalt. The concrete base or floor on which the insulation is to be laid must be reasonably smooth and level. Apply the first layer of Armstrong's Corkboard in hot asphalt. Apply the second layer in hot asphalt. After cork dust has been swept in all joints, flood the top surface heavily with hot asphalt; or, apply a waterproofing membrane consisting of two layers of fifteen (15) pound saturated roofing felt, each layer being mopped in place with hot asphalt and flash this membrane up nine (9) inches high and seal it along all walls and around all columns.

On top of this insulation install a wearing floor as described under "Concrete Wearing Floors."

Note: For single layer of corkboard apply as described above for first layer.



Wood Base—Two Layers of Corkboard—Both Layers Laid in Asphalt. On top of the wood base or floor, apply one layer of Armstrong's Asphalt Sheeting or waterproof insulating paper with all edges lapped not less than 3" and sealed with asphalt.

Apply the first layer of Armstrong's Corkboard in hot asphalt. Apply the second layer in hot asphalt. All joints must be tight and the joints of the successive layers broken with respect to each other. After cork dust has been swept in all joints, flood the top surface heavily with hot asphalt; or, apply a waterproofing membrane consisting of two layers of Armstrong's Asphalt Sheeting or two layers of fifteen (15) pound saturated roofing felt, each layer being mopped in place with hot asphalt, and flash this membrane up nine (9) inches high and seal it along all walls and around all columns.

On top of the insulation install a wearing floor as described under "Concrete Wearing Floors."

Note: For single layer of corkboard apply as described above for first layer.

Columns

Square Concrete Columns—Two Layers of Corkboard—Both Layers Applied in Asphalt. Prime the square concrete columns with Armstrong's No. 3 Asphalt Priming Paint, as described under "Asphalt Priming Paint."

Apply the first layer of Armstrong's Corkboard in hot asphalt. Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers or special galvanized nails of the proper length. All joints must be tight and the joints of the successive layers broken with respect to each other.

All vertical corners must be protected with suitable angle corner guards 4"-6" high, securely fastened to the column before the finish is applied.

Finish the exposed cork surfaces as described under "Finishes."

Note: Where only one layer of corkboard is used, apply it as described above for first layer.

Round Concrete Columns—One Layer Cork Lags—Applied in Asphalt. Prime the round concrete columns with Armstrong's No. 3 Asphalt Priming Paint, as described under "Asphalt Priming Paint."

Apply the cork lags, properly beveled to fit the column, in hot asphalt, and toenail each cork lag to the abutting one with treated wood skewers or special galvanized nails of proper length. All joints must be tight. Smooth off any rough edges or corners.

Where necessary to protect the insulation, install a sheet metal column guard 4"-6" high, securely fastened to the column before the finish is applied.

Finish the exposed cork surfaces as described under "Finishes."

Finishes

Asphalt Plastic Finish. Finish the exposed cork surfaces (walls, ceilings, columns, solid cork partitions, etc.) with Armstrong's Asphalt Plastic Finish. The mixture for the finish consists of 50 gallons Armstrong's Asphalt Emulsion, 175 pounds asbestos floats, 275 pounds ($2\frac{3}{4}$ cubic feet) dry, screened sand, 15 gallons clean water.

These ingredients are thoroughly mixed together until uniform in color throughout. Use only the smallest quantity of water necessary to give the proper troweling consistency. Apply this mixture directly to the corkboard surfaces in two coats, each approximately one eighth ($\frac{1}{8}$) inch in thickness. Before applying the first coat all voids, open joints, or broken corners must be pointed up with this mixture. The first coat must be hand dry before the second coat is applied. Trowel the second coat smooth. The final thickness of the finish must be approximately $\frac{1}{8}$ " when dry. Finish all corners true and clean.

The finish must be thoroughly dry before any paint is applied, to guard against cracking.

Note: Asphalt plastic finish should not be applied when the temperature is below 40° F. In cold weather, provide heat to warm the spaces where the finish is being applied.

Portland Cement Plaster. Finish the exposed cork surfaces (walls, ceilings, columns, solid cork partitions, etc.) with portland cement plaster. The portland cement plaster is mixed in the proportions 1 part portland cement, 2 parts clean, screened sand, and 8% hydrated lime, and is applied in two coats, each approximately one quarter ($\frac{1}{4}$) inch in thickness.

The first coat must be keyed thoroughly to the insulation and scratched in two directions and allowed to dry before the application of the second coat. The second coat is brought to an even surface by means of a straightedge and troweled or floated smooth without ridges or blemishes of any kind.

To reduce cracking to a minimum, after the plaster has hardened somewhat, score into squares of approximately 4'-0" each way, using a tool that will cut a clean groove through the finish to the first coat.

ARMSTRONG'S CORKBOARD INSULATION FOR COLD STORAGE (Continued)

Protect all salient vertical corners with expanded metal corner beads, fastened securely in place before the plaster finish is applied. All other corners must be true and clean, either square or coved to a $\frac{3}{4}$ " radius.

Note: The portland cement plaster can be strengthened and cracking of the finish minimized by reinforcing the plaster with galvanized metal lath or galvanized wire netting, securely fastened to the surface of the insulation with $1\frac{1}{4}$ " galvanized staples or short, large-headed nails before the plaster is applied.

Armstrong's Mastic Finish. Finish the exposed cork surfaces (walls, ceilings, columns, solid cork partitions, etc.) with Armstrong's Mastic Finish approximately $\frac{1}{8}$ " thick and ironed on the corkboard at the factory. After the boards are in place, fill and seal the joints and nail heads with mastic seam filler in a neat and workmanlike manner.

Finish all convex corners with Armstrong's Mastic Finish Quarter Round.

Paint. a. *Armstrong's Cold Storage Paint*—The finish (asphalt plastic finish, portland cement plaster, or Armstrong's Mastic Finish) must be thoroughly dry and clean of loose mortar, dirt, and grease. Apply two coats of Armstrong's Cold Storage Paint, flowing on each coat. Allow at least twenty-four hours between the application of the two coats for drying.

Note: On portland cement plaster or concrete, a third coat may be required to cover.

b. *Aluminum Paint*—The finish (asphalt plastic finish, portland cement plaster, or Armstrong's Mastic Finish) must be thoroughly dry and clean of dirt, loose plaster, and grease. Apply two coats of aluminum paint, flowing on each coat, and allow the first coat to dry before the second coat is applied. The aluminum paint must not be mixed until it is to be used.

Note: Not all aluminum paints are suitable for application over finishes in cold storage rooms. Use only aluminum paints known to be satisfactory and specifically recommended for this purpose.

Concrete Wearing Floors

Monolithic Concrete Floor. Install a monolithic concrete wearing floor over the floor insulation three (3) inches thick at the low point and sloping one (1) inch in ten (10) feet. The concrete shall be mixed 1 part portland cement, 2 parts clean, sharp sand, and 3 parts crushed stone, and only wet enough to flush readily under slight tamping. The concrete must be handled rapidly after mixing, tamped to a compact mass and struck off at the proper level or slope as determined by previously set screeds.

Cover the floor to a 1" radius along all walls and around all columns.

After the concrete has hardened somewhat, but is still workable, float it so as to thoroughly compact it and provide a surface free from defects and blemishes and trowel smooth with a steel trowel. Protect the floor for several days after being laid until the concrete has hardened.

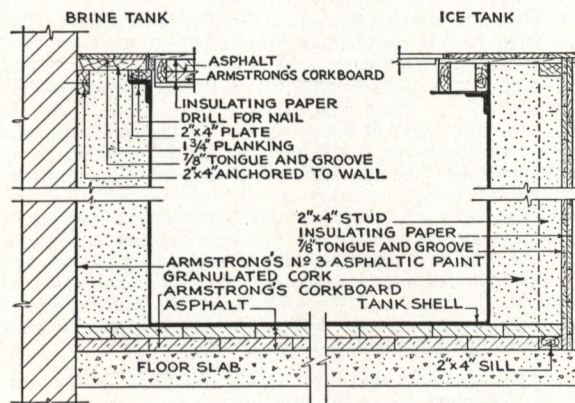
Two-Course Concrete Floor. Over the floor insulation install a two-course concrete wearing floor three (3) inches thick at the low point and sloped one (1) inch in ten (10) feet. Mix the concrete base 1 part portland cement, 3 parts clean, sharp sand, and 5 parts crushed stone, and only wet enough to flush readily after slight tamping. The concrete must be handled rapidly after mixing, tamped to a compact mass and struck off at the proper level or slope as determined by previously set screeds.

Install the wearing course one (1) inch in thickness and mixed 1 part portland cement to 2 parts clean, sharp sand, before the concrete base has hardened. Float the wearing course in a manner that will thoroughly compact it and remove any defects or blemishes and then trowel smooth with a steel trowel. Cover the wearing course to a 1" radius along all walls and around all columns. Protect the floor for several days after being laid until the concrete has hardened.

Tanks—Freezing and Brine Storage

Two Courses of Corkboard on the Bottom and Granulated Cork on Sides, Wood Finish. *Bottom*—Apply the first layer of

Armstrong's Corkboard on top of the concrete or wood base in hot asphalt. Apply the second layer in hot asphalt. All joints must be tight and the joints of the successive layers broken with respect to each other. Flood the top surface of the insulation heavily with hot asphalt. The insulation must extend to the outside of the insulation on the sides of the tank.



Sides—Construct retaining walls 10" and 12" away from the tank sides, consisting of 2x4 studs on 18" centers, sheathed on the outside with two layers $\frac{7}{8}$ " T. and G. boards with one layer of waterproof insulating paper between. Fasten the studs to a 2x4 plate at the bottom and to suitable framing at the top of the tank. Erect the first layer of T. and G. boards horizontally and the second layer vertically. Fill the space between the tank and the retaining wall with regranulated cork and pack it tightly in place.

Protect the top of the insulation around the tanks by a curbing consisting of two layers of $\frac{7}{8}$ " T. and G. boards with one layer of waterproof insulating paper between, laid on properly supported framing so that the top of the curbing is flush with the removable covers. Suitable constructions for the curbing are shown in the drawing.

Two Courses of Corkboard on the Bottom and One Course of Corkboard and Granulated Cork on Sides, Portland Cement Plaster or Armstrong's Asphalt Plastic Finish. *Bottom*—Apply insulation as described in Specification 1.

Sides—Erect 2x4 studs against the sides of the tank on 18" centers, well secured to the top of the tank and to a 2x4 plate at the bottom. Erect corkboard of the proper thickness against the studs, securely fastening the insulation with special galvanized nails of the proper length. Fill the space between the corkboard and the tank with regranulated cork well packed in place. All joints between the corkboards must be tight and the vertical joints staggered. Finish the exposed cork surface with portland cement plaster or asphalt plastic finish mixed and applied as described under "Finishes."

Protect the top of the insulation around the tank with a curbing as described in Specification 1.

Two Courses of Corkboard on the Bottom and Two Courses of Corkboard on Sides, Portland Cement Plaster or Armstrong's Asphalt Plastic Finish. *Bottom*—Apply insulation as described in Specification 1.

Sides—Erect studs (thickness of studs equal to thickness of first layer of insulation) against the tank 24" apart and well secured to the top of the tank and to a wood plate at the bottom. Apply the first layer of Armstrong's Corkboard against the tank sides and between the studs in hot asphalt. Toenail it to the studs with special galvanized nails. Apply the second layer in hot asphalt and additionally secure it to the first layer with treated wood skewers. Where the second layer crosses the studs, nail it to the studs with special galvanized nails of proper length. All joints must be tight and the joints of the successive layers broken with respect to each other. Finish with portland cement plaster or asphalt plastic finish mixed and applied as described under "Finishes."

Protect the top of the insulation around the tank with a curbing as described in Specification 1.

ARMSTRONG'S CORK COVERING FOR COLD LINES

Material and Characteristics

Armstrong's Cork Covering is made in the following thicknesses: "Special Thick Brine," "Brine," and "Ice Water," for standard pipe sizes and fittings of all types; and Lagged Covers in thicknesses up to 6" for any pipe or tank size.

Material is made from clean cork granules compressed in molds and then baked to produce a light, tough, rigid insulating material with a coefficient of heat transmission (U) of .28.

Moisture-Resistance. Armstrong's Cork Covering being made of pure cork, has cork's inherent resistance to the effects of water and air-borne vapor that are always present in insulation service.

Fire-Resistance. The material cannot take fire from sparks or embers. Surface charring produced upon exposure to flame checks fire and causes it to cease when flame is removed.

Ease of Installation. Being light in weight, structurally strong, and made in 3' lengths, Armstrong's Cork Covering is easily handled. No special tools are needed. Sufficient sundries (see "Accessories") are furnished and shipped with the covering. Covering is accurately molded and fits pipe sizes exactly.

Accessories. With cork covering are supplied all sundries necessary for proper application. These include copper clad wire or steel bands and clips for securing the cemented covering in place, Armstrong's Waterproof Cement for lateral and end joints, Armstrong's Fitting Filler for spaces between pipe

fittings and Fitting Covers, Armstrong's Seam Filler for surface irregularities and Armstrong's Cork Covering Paint for coating the finished covering surface.

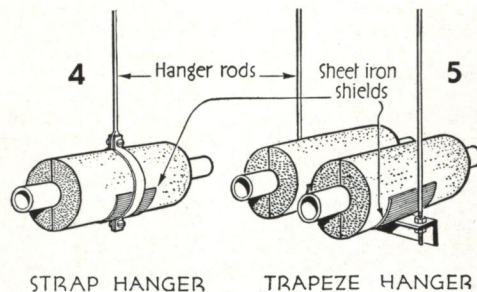
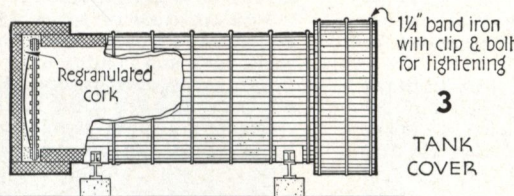
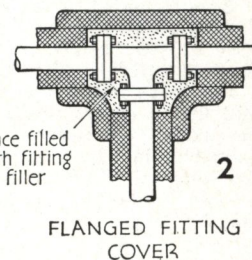
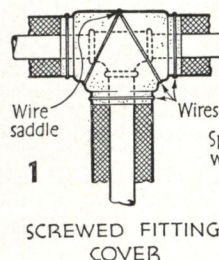
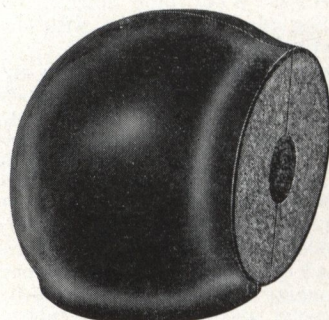
Cost. Due to its reasonable cost, ease of installation, and efficiency, Armstrong's Cork Covering returns a profit on the money invested in it. Annual returns of from 50% to over 300% of the first cost can be expected, depending on the type of installation and the cost of refrigeration.

Selection of Material

Table I lists thicknesses of materials recommended for various conditions and pipe sizes. For unusual installations requiring special consideration, consult the nearest Armstrong branch office or distributor (see telephone directory) or Armstrong's Architectural Service Bureau, at the main office, Lancaster, Pa.

Maintenance

Owners should be advised that with regular inspection and care, cork covering which has been properly applied will give efficient service almost indefinitely. Covering should be inspected at least once a year. Loose or broken wire or bands should be tightened or replaced at once. Open joints should be sealed and the cork covering painted annually with one coat of Armstrong's Cork Covering Paint.



Above, typical molded cover for screwed fitting; center, applying molded pipe covering and flanged fitting covers; right, painting finished job with Armstrong's Cork Covering Paint. Figure 1: Method of installing screwed fitting cover, showing location of wires and straight lengths of covering butted against fitting cover. Figure 2: Molded cover for flanged fitting showing use of Armstrong's Fitting Filler and Fitting Cover lapped over straight lengths. Figure 3: Method of covering cylindrical tanks. Figures 4 and 5: Pipe hangers must not pierce Armstrong's Cork Covering.

TABLE I—THICKNESSES AND USES

Type of Covering	Cork Covering SPECIAL THICK BRINE	Cork Covering BRINE THICKNESS	Cork Covering ICE WATER THICKNESS	CORK LAGGING and DISCS					
Thickness (inches)	2.63 to 4.00 (depending on pipe size; normally less thickness required for small pipe sizes)	1.70 to 3.00 *as left	1.20 to 1.93 *as left	1.5	2	3	4	5	6
Use (Temp. range in °F.)	-25 to 0 (For brine, ammonia suction, CO ₂ , or other refrigerant or refriger- erated process lines)	0 to +35 (for brine, ammonia suction, CO ₂ , or other refrigerant or refriger- erated process lines)	+35 and up (drinking water, beer, etc.)	65 and up	55 to 65	32 to 55	20 to 32	5 to 20	5 and lower
Recommendations vary with climatic conditions, cost of refrigeration, etc.									

ARMSTRONG'S CORK COVERING FOR COLD LINES (Continued)

Specification and Installation

General. *Pipe lines* must be clean of all rust, scale, and dirt; must be absolutely dry and free from frost; all connections must be tight before Armstrong's Cork Covering is applied. *Hangers* must be on outside of covering and may be strap or trapeze type. Protect covering at hangers as shown in Figures 4 and 5, with sheet iron shields of gauge shown in Table II. *Spacing of pipes* must be as shown in Table III, although where cramped conditions are unavoidable, Armstrong's Cork Centers may be used.

Order of installation of the covering and fitting covers varies with the type of fitting (screwed or flanged). When applying molded covering, if fittings are screwed, apply fitting covers first and wedge straight runs between fitting covers; if fittings are flanged, cover straight runs first, wedging covering between flange bolts, and applying fitting covers last. When covering is lagged, apply straight runs first, wedging covering between fittings, and apply fitting covers last. Methods of finishing are similar for all types, see "FINISHING." (Complete instructions for installing and finishing are furnished with each shipment.)

Method of Application. Apply sectional covering with all end joints broken by starting with half section pieces 18" long and full 36" lengths. All longitudinal joints shall be on the top and the bottom of the pipe. Use Armstrong's Waterproof Cement on all longitudinal and end joints and secure in place with copper-clad steel wire or steel bands.

Apply molded fitting covers with Armstrong's Waterproof Cement on all joints and secure in place with copper-clad steel wire or steel bands. All spaces between covers and fittings must be carefully filled with Armstrong's Fitting Filler.

For pipes larger than the sizes for which molded covering and fitting covers are made, use Armstrong's Cork Lagging beveled to the proper diameter. When lagging is factory-assembled into half-section form, its application is the same as for sectional covering. When lagging is assembled on the job, all end joints must be broken by starting with alternate 18" and 36" length lags. Use Armstrong's Waterproof Cement on all joints and secure lags in place with copper-clad wire or steel bands.

Screwed and flanged fittings larger than sizes for which molded covers are made must be covered with flanged fitting covers made from Armstrong's Cork Lagging. When lagged fitting covers are factory-assembled into half-section form, application is the same as for molded fitting covers. If lagging for fitting covers is assembled on the job, all lagging must be carefully assembled according to instructions included with shipment, using Armstrong's Waterproof Cement on all joints and securing the insulation in place with copper-clad wire or steel bands. All spaces between covers and fittings must be carefully filled with Armstrong's Fitting Filler.

Note 1: In all cases where a pipe passes through an insulated wall into a refrigerated room, the covering shall extend 1" beyond the wall inside the room. **Note 2:** Wall and floor openings for insulated pipes must be large enough to allow the full thickness of the covering to be used.

Wiring or Banding. Copper-clad steel wire or steel bands are furnished with each shipment and must be used. All wires and bands must be applied straight and tight. With sectional covering, use at least six wires or bands per section. With molded fitting covers, use four wires or bands per cover for screwed fittings, and six for flanged fittings. With lagged covering and fitting covers, use the same as for molded covers.

Finishing. Fill all joints and seams and smooth all chipped and raw edges of covering and fitting covers with Armstrong's Seam Filler. Paint one coat Armstrong's Cork Covering Paint.

Weatherproofing is required for all lines running through refrigerated rooms, shafts, or tunnels, or on lines exposed to weather. Weatherproof jackets on straight runs shall be one layer of 2-ply roofing paper with 2" sealed laps made to form watersheds and secured with copper-clad wire or steel bands on 9" centers. Paint weatherproof jacket with one coat of Armstrong's Cork Covering Paint.

Fitting covers shall be weatherproofed with two separate coats of Armstrong's Weatherproofing Plastic applied to approximately $\frac{1}{8}$ " total thickness and brought over fitting cover edges to seal with the weatherproof jacket on straight runs.

Membrane Tape Finish. For added protection, cork covered lines exposed to severe conditions in dairy and ice cream plants and industrial plants may be finished with membrane tape. Before painting covering, apply membrane tape 3" to 6" wide to covering and fitting covers. Make tape conform to curvature of fitting coverings, using a combination of wrapping and stripping to cover entire surface. Wrap tape spirally on straight runs of covering, lapping edges $\frac{1}{2}$ ". Paint with one coat of Armstrong's Cork Covering Paint.

Canvas Finish. Where a decorative finish is desired on exposed lines in such places as hotels, restaurants, and hospitals, cover with 8-oz. canvas painted with several coats of a decorative paint. After covering is completely installed and painted, apply separately one or two layers of 25-lb. resin-sized paper, lapping edges 1". Stretch 8-oz. canvas tightly over covering and fitting covers and sew all seams neatly, using blind stitches on exposed seams. Size the canvas thoroughly, and when dry, paint with two coats of good quality decorative paint as selected.

Cylindrical Tanks. Insulate all cylindrical surfaces with one layer of Armstrong's Cork Lagging (see Table I for thicknesses), beveled to correct diameter and with mineral rubber finish ironed on both sides at factory. Apply the lags with broken transverse joints using Armstrong's Waterproof Cement on all joints. Secure lagging with galvanized iron bands spaced not over 12" apart and drawn tight by bolts through clips or with a suitable tightening tool.

Insulate ends of tanks (flanged or welded) with discs of Armstrong's Cork Lagging of same thickness. All spaces between tank and lagging must be filled with Armstrong's Fitting Filler, and spaces between discs and tank heads must be filled with regranulated cork. After all insulation is applied, fill all seams and smooth chipped and raw edges with Armstrong's Seam Filler, and paint entire surface with one coat of Armstrong's Cork Covering Paint.

TABLE II—GAUGES OF HANGER SHIELDS

Hanger Type and Pipe Size	Gauge, Galvanized Sheet Iron Shield
Strap Hangers	18 ga.
Trapeze Hangers { pipe $\frac{1}{4}$ " to 2 $\frac{1}{2}$ " pipe 3" to 6" pipe 7" and up	16 ga.
	14 ga.
	12 ga.
Shields must extend 4" each side of hanger and up to center line of pipe.	

TIE WIRES AND BANDS

Copper-clad steel wire or steel bands will be supplied by the Armstrong Cork Company with each shipment, in proper sizes and with recommended spacings, for each portion of the job.

TABLE III—PIPE SPACING

Covering, Fitting Types, Pipe Sizes	Between Surfaces of Parallel Bare Pipes (inches)	Between Surfaces of Bare Pipe and Adjacent Surface (inches)
BRINE THICKNESS:		
Screwed Fittings, $\frac{1}{4}$ " to 6" incl.	8	6
Screwed Fittings, over 6"	14	8
Flanged Fittings	14	8
SPECIAL THICK BRINE:		
Screwed Fittings, $\frac{1}{4}$ " to 3" incl.	10	8
Screwed Fittings, over 3"	18	12
Flanged Fittings	18	12
ICE WATER THICKNESS:		
Screwed Fittings, $\frac{1}{4}$ " to 6" incl.	6	4
Screwed Fittings, over 6"	10	5
Flanged Fittings	10	5

ARMSTRONG'S VIBRACORK TO LESSEN VIBRATION TRANSMISSION

Armstrong's Vibracork provides an economical and practical means of guarding against the unpleasant and destructive effect of vibration. It prevents lowered efficiency, hastened depreciation, irritating noises, and other natural results of excessive vibration.

Vibration from motors and engines, fans, blowers, pumps, printing presses, mixers, generators, elevator machinery, and similar equipment can be quieted with a cushion of Vibracork. Floors of buildings can also be effectively isolated.

Vibracork is a resilient board made of pure granules of cork, compressed and baked under pressure. Selection of a suitable grade of cork and proper granule size aid exact control of the density of the material and assure its having the desired characteristics. The boards are strong and durable, and maintain their physical characteristics indefinitely when properly used.

Sizes and Thicknesses

Armstrong's Vibracork is supplied in boards 12" wide and 36" long in thicknesses from 1" to 6". Other dimensions less than 12" x 36" can be cut to order. Standard thicknesses are 1", 2", 3", and 4". For most applications, the 1" and 2" thicknesses are recommended, and the 2" thickness should be used most frequently.

Two Densities

Armstrong's Vibracork is made in two densities suitable to meet any machinery isolation problem encountered in ordinary practice.

The characteristic resilience of Armstrong's Vibracork results from the thousands of minute air cells which make up the structure of cork. Unlike other materials, Vibracork never hardens nor takes a set if loaded within its proper limits. If applied properly, it will not disintegrate or change its physical characteristics in any manner but will give long and satisfactory service.

Installation

To secure the desired result, it is essential in installing Vibracork to keep the following points in mind:

- (1) Avoid through-metal, such as through foundation bolts, direct contact with metal base and concrete, etc.
- (2) Through-bolts, if unavoidable, should be properly isolated.
- (3) The area of Vibracork used should be so designed as to give a deflection in the Vibracork which will enable it to serve best as a spring in the damping of vibration.
- (4) Where possible, a heavy foundation should be provided as it aids in the damping by lowering the center of gravity of

the machine, and by giving additional weight and assuring better compression (spring) conditions in the Vibracork.

In order to secure a satisfactory result, Vibracork must be under a sufficient amount of compression to allow its resiliency to become effective. The load must not be so great, however, as to destroy the resiliency. To secure adequate compression, it is often necessary to apply isolation on limited areas only. The accompanying diagrams illustrate several methods of application. Where at all possible, the floating type of foundation should be used. If this is not possible, the use of pads is recommended with an indirect bolt connection to avoid a through contact.

The greatest isolating effect will be secured by using as heavy loads and as light a density as is possible and practical.

TABLE OF SUGGESTED LOADINGS

Standard Density Vibracork 1500—5000 lbs. per square foot
Heavy Density Vibracork 5700—8500 lbs. per square foot

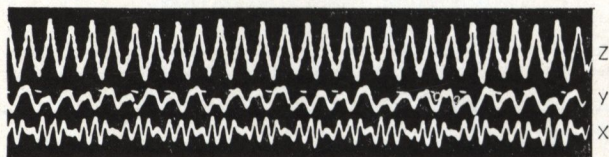
Methods of Application

Practically any type of machine may be isolated with Vibracork. There are two general methods of application, both subject to variation. In the first method, the foundation pit is finished with concrete, and then lined on both bottom and sides with Vibracork of the proper thickness and density, and set in hot asphalt. A suitable waterproof paper applied in hot asphalt is put over the cork. Following that, the concrete for the foundation proper is poured in. This construction should be used wherever possible, especially with heavy machinery.

In the second method, the Vibracork is applied directly between the machine's bedplate and the floor or foundation to which it is fastened. Where the load of the machine is heavy enough in proportion to the area of the base, the isolation may be applied as a continuous layer. In most cases, however, the machinery isolation must be applied over a limited area only as shown in figures III, IV, and V on next page.

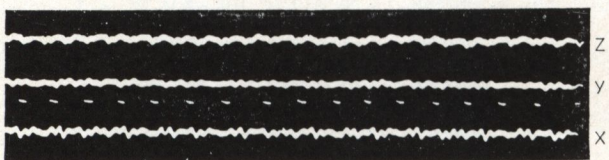
In cases where direct coupled machines are set up on independent foundations, they should be tied together with a continuous bedplate. Where Vibracork is used between the machine and foundation and is not protected by being applied in channel-irons, it should be covered with light telescopic metal pans. These will protect it from abrasion, oil, and other chemicals.

Vibracork can easily be cut to size with an ordinary carpenter's saw. Where pads of Vibracork are used they are frequently secured with Armstrong's 236 Cement or hot asphalt.



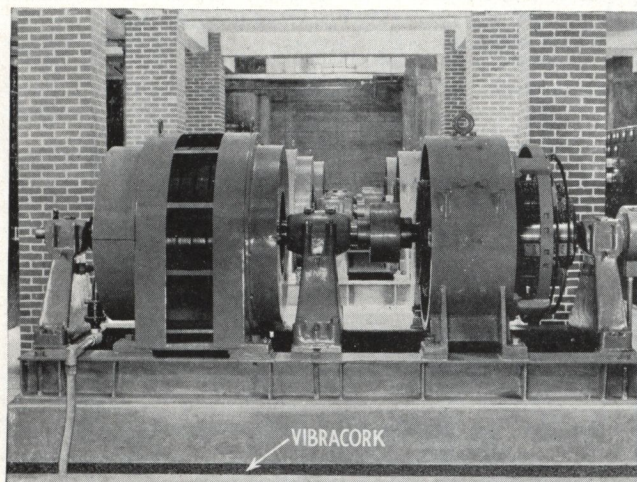
Without Vibracork. Z shows the vertical vibration. Y shows the horizontal vibration at 90° to the shaft. X shows the horizontal vibration parallel to the shaft.

The timing dots are 1/2000 of a minute apart.



With Vibracork. Z shows the vertical vibration. Y shows the horizontal vibration at 90° to the shaft. X shows the horizontal vibration parallel to the shaft.

The timing dots are 1/2000 of a minute apart.

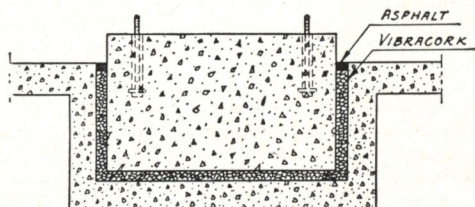


Armstrong's Vibracork, used to line the motor-generator foundation pit in the new Supreme Court Building, in Washington, D. C., insures elimination of nuisance caused by vibration. Architects, Cass Gilbert and David Lynn.

ARMSTRONG'S VIBRACORK TO LESSEN VIBRATION TRANSMISSION

TYPICAL METHODS OF APPLYING VIBRACORK

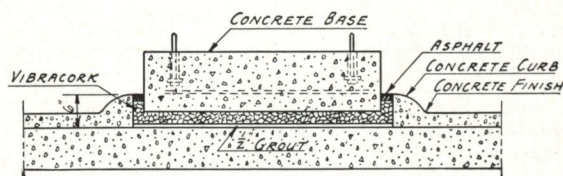
Fig. I



TYPICAL DEPRESSED FOUNDATION

Isolation of single or multiple machine units may be accomplished most satisfactorily by the pit type foundation as illustrated above.

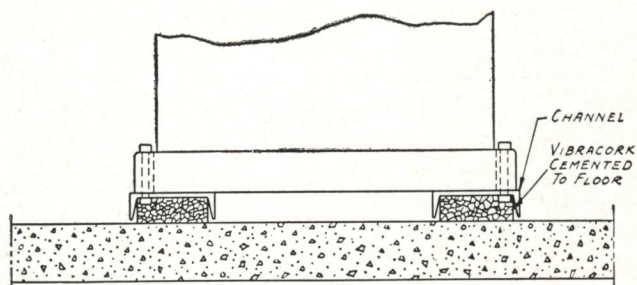
Fig. II



FLOATING FOUNDATION
For Existing Suspended Slab

Light or heavy motor generator sets, pumps, and compressors may be placed as above on existing suspended concrete floors.

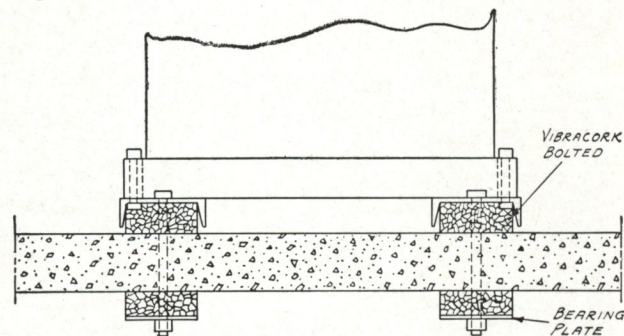
Fig. III



TYPICAL LIGHT MACHINE ISOLATION

Method of isolating machines with strips of Armstrong's Vibracork set in channel irons and permanently cemented to the concrete floor.

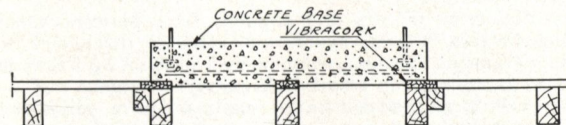
Fig. IV



TYPICAL LIGHT MACHINE ISOLATION
With Through-Bolting

A method of isolating light machines employing channel-irons but with the machine bolted through the floor and an extra pad of cork below.

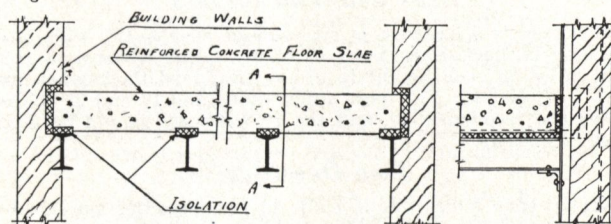
Fig. V



FOUNDATION—MILL TYPE FLOOR CONSTRUCTION

A heavy concrete floating foundation will serve in some cases if the wood floor is braced and proper concentration of load is arranged.

Fig. VI

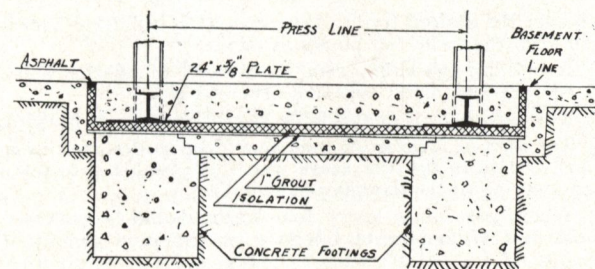


SECTION A-A

SUSPENDED FLOOR
Entirely Isolated

Entire building floors may be completely isolated for either light or heavy manufacturing. The manner of installing the isolation will depend upon the type of building construction as indicated above.

Fig. VII

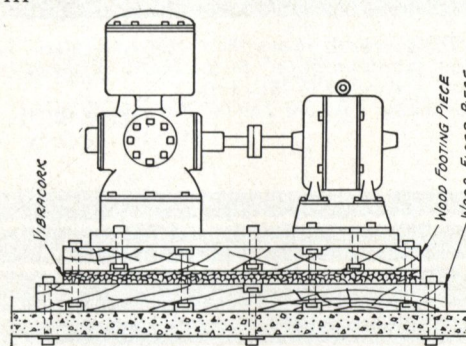


TYPICAL PRESS FOUNDATION

Large Newspaper Plants

One of the approved methods of isolating printing presses in large newspaper plants. This may be varied to suit building construction.

Fig. VIII



PUMPS AND MOTORS ON SAME BEDPLATE

Two or more units on the same bedplate installed on existing wood or concrete floors. This isolation method is particularly adapted for small motor generator sets, pumps, and other light-weight machinery.

ARMSTRONG'S TEMLOK BUILDING INSULATION

DESCRIPTION AND SPECIFICATIONS FOR INSTALLATION

Characteristics and Properties

Armstrong's Temlok is a fibreboard insulation made from heartwood fibres of long leaf southern yellow pine under controlled conditions which assure uniformity and adherence to performance standards. It is fabricated in rigid forms and in solid thicknesses from $\frac{1}{2}$ " to $1\frac{1}{2}$ " without laminations. The material is light in weight (1.2 lbs. per bd. ft.), can be easily handled in large sheets and can be cut, sawed, and worked with ordinary tools.

Temlok's properties make it adaptable to a wide variety of uses in all types of buildings where a combination of high insulating value, low moisture absorption, adequate structural strength, and excellent plaster adhesion is required. For insulation and structural use Temlok is made in board and lath forms. For use as an insulating interior finish it is available factory-finished in Temlok De Luxe.

Thermal conductivity averages .33 B. t. u. per hr. per sq. ft. per degree F. per in. thickness at 75° F. mean temperature.

Insulation value of Temlok depends upon the thickness of the material.

Moisture-Resistance. The resinous character of Temlok fibres makes the material naturally resistant to moisture. Tests show only 2.2% by volume of water absorption. Percentage for this characteristic allowed by U. S. Commercial Standard CS42-35 is 5% for insulating building board and 10% for roof insulating board.

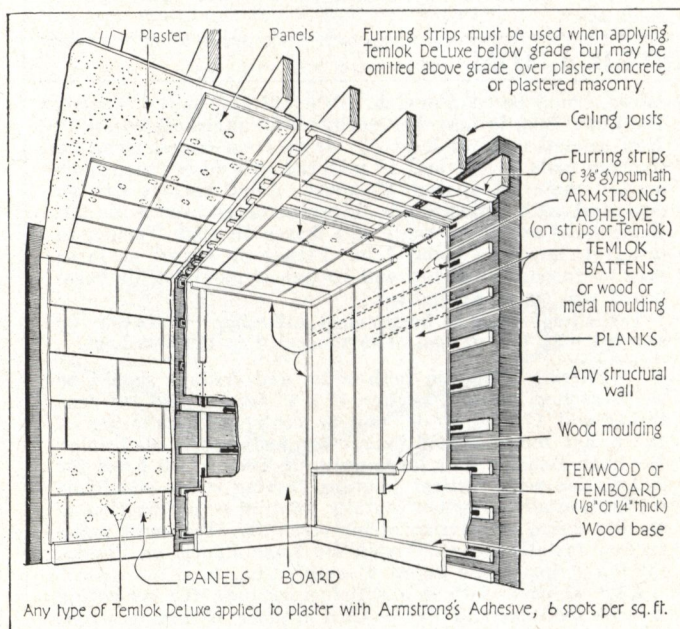
Plaster Bond. The same standard allows 600 lbs. per sq. ft. as the minimum plaster adhesion requirement. The plaster bond for Temlok is 1,024 lbs. per sq. ft.

Strength, both transverse and tensile, and the limits of deflection and linear expansion of Temlok exceed requirements of the U. S. Department of Commerce Commercial Standard CS42-35 for Fibre Insulating Board, dated June 24, 1935, and Federal Specification LLL-F-321-A.

Color and Texture. Natural color of Temlok is golden buff. It has a mat-like texture.

For use as an insulating interior finish, Temlok De Luxe is available factory-finished in six colors. This material has a smooth surface and is made in boards, planks, and panels.

METHODS OF APPLYING TEMLOK DE LUXE



Range of Application

Temlok products in one or more forms are designed for use in three general ways:

1. **For Sheathing**—As an insulating sheathing as well as an essential part of a frame structure on walls applied under wood siding, stucco, masonry veneer, shingles, slate, and similar types of materials. With Temseal no building paper is required.

2. **For a Plaster Base**—As an insulating lath on exterior walls, partitions, and ceilings to receive interior plaster, Temlok is applied directly on studs and joists in frame construction and on furring strips over masonry surfaces.

3. **For Interior Finish**—As an insulating, decorative, and sound absorbing surface finish for walls and ceilings in houses, schools, offices, shops, restaurants, and theatres. See "Temlok De Luxe" table.

TABLE A—TEMSEAL SHEATHING—TEMLOK LATH

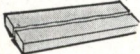
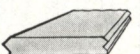
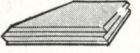
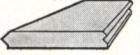
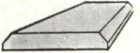
Product	Lengths	Widths	Thickness	Finish	Color
 Temseal Insulating Sheathing	6', 7', 8', 8½', 9', 9½', 10', and 12'	4'	¾"	Asphalt Covered with Kraft Paper	Kraft
 Insulating Lath	4'	1'-6"	½", ¾", 1", and 1½"	Standard	Natural

TABLE I—TEMLOK DE LUXE UNITS

COLORS: {All forms of Temlok De Luxe are available in the colors: white, cream, ash, walnut, coral, and green.

Product	Lengths	Widths	Thickness	Edges
 Insulating Board	6', 7', 8', 9', 10', and 12'	4'	½", ¾", and 1"	Square finished
 Insulating Planks	6', 8', 9', 10', and 12'	6", 8", 10", 1', and 1'-4"	½", ¾", and 1"	V bevel on long edges
 *Insulating Panels	2'-8" and 4'	1'-4" and 2'	½", ¾", and 1"	V bevel on all edges
 *Insulating Panels	1', 1'-4", and 2'	1', 1'-4", and 2'	½", ¾", and 1"	V bevel on all edges
 Border Strips	4' and 8'	1'	½" and 1"	V bevel on long edges (4' strips also beveled on short edges)
 Batten Strips	6', 7', 8', 9', 10', and 12'	2", 2½", and 3"	½" and 1"	Plain bevel on long edges

(*) Other sizes obtainable.

½" Thickness available on order.

ARMSTRONG'S TEMLOK BUILDING INSULATION

DESCRIPTION AND SPECIFICATIONS FOR INSTALLATION (Continued)

Temseal Vapor-Proofed Sheathing

Temseal Sheathing is reinforced and sealed with a coating of asphalt and a layer of tough kraft paper. This seal assures high structural strength and in addition, resistance to infiltration of air and moisture. Building paper is not required when Temseal is used. For sizes see Table A.

Apply Temseal with large headed nails $1\frac{1}{2}$ " long. Nail first to intermediate studs using 6" spacing. Nail every 4" on edges.

Temlok Insulating Lath

Size of Temlok Lath appears in Table A. Temlok Lath should be nailed with five nails at each support. Nails should have large heads and be at least 1" longer than thickness of lath.

Over Temlok Lath use gypsum cement or gypsum wood fibre plaster for both scratch and brown coats. Do not use lime plaster except over brown coat.

How to Specify Temlok De Luxe

In addition to Table II, carpenter specifications should cover:

1. **Scope of Work**—List definitely the areas to be surfaced with Temlok De Luxe. If more than one thickness is to be used, list separately and define areas for each.
2. **Classification of Product**—Specify by name, size, and thickness the particular units of Temlok De Luxe to be applied.
3. **Limiting Structural Conditions**—Specify construction procedure when required to assure satisfactory performance of Temlok De Luxe after installation. This applies particularly to the preparation of sub-bases such as old and new plaster, concrete, brick, tile, or stone masonry or solid wood.
4. **Care in Handling**—State that the completed installation must be level, all edges and corners true, all units in alignment, and all joints tight. Finish of Temlok De Luxe must be kept clean. Mechanics should work with clean hands. A moist cloth and dry towel, or clean cotton gloves are recommended as a part of their equipment.

TABLE II—SPECIFICATION RECOMMENDATIONS FOR USE OF TEMLOK DE LUXE

PREPARATION OF SUB-BASES

PLASTER

New Plaster. Omit white coat. Trowel brown coat to a true, even, reasonably smooth finish and size. Plaster must be thoroughly dry before Temlok De Luxe is applied.

Old Plaster. If covered, remove paper or paint, scratch plaster with a wire brush. If uncovered, clean thoroughly. If porous or dusty, coat with size. Roughen unusually smooth hard surfaces with sandpaper or scratching tool.

CONCRETE

Allow new concrete to dry thoroughly, then size. Clean and roughen old concrete as for old plaster.

Walls. If surface is not true and level, set 1"x4" furring strips 6", 8", or 12" o.c. (*) secured to concrete by expansion or anchor bolts and set so that edges of Temlok De Luxe units will be centered on the strips. Shim as necessary to produce level surface.

Ceilings. To support furring strips on rough surfaces, place 2" x 4" joists 16" o.c. and bolt 3' to 4' o.c. For joists on edge bolt up to 6' o.c. nail 1" x 4" furring strips 6", 8", or 12" o.c. at right angles to joists to provide bearing and joint centering for Temlok units.▲

MASONRY

Above Grade. Walls of brick, hollow tile, stone, etc., should be plastered smooth, plumb, and true and prepared for Temlok De Luxe as for new plaster. 1"x4" furring strips (*) secured on 8" to 12" centers or gypsum lath on furring provides a suitable base for application of Temlok De Luxe on masonry walls above grade.

Below Grade. On all masonry walls below grade furring strips are required. Apply Temlok against furring which permits vertical circulation of air between Temlok and wall.

WOOD

Framing Members. For application of panels or planks provide 1" x 4" furring strips (*) 6", 8", or 12" o.c. at right angles to studs or joists facenailed at each support with at least two 8d nails. Allow $\frac{1}{8}$ " space between ends of strips for expansion. Shim strips if needed to insure level surfaces.

Solid Wood. For satisfactory application of Temlok De Luxe, surfaces must be of smooth surfaced boards. Securely nail existing surfaces to prevent excessive contraction and expansion. Boards of new ceilings should not be driven tightly longitudinally or laterally, but facenailed with at least two nails at each joist. Where paint is not well bonded to wood remove it or roughen surface well with coarse sandpaper.

METHODS OF APPLICATION

CEMENTING

It is recommended that all except board units of Temlok De Luxe be installed by cementing to properly prepared bases with waterproof Armstrong's Adhesive. This compound provides a strong, permanent bond between Temlok and wood, plaster, gypsum board, or concrete.

Flat Surfaces. Apply Armstrong's Adhesive to back of Temlok De Luxe in uniform spots about $2\frac{1}{4}$ " in diameter and $\frac{1}{4}$ " thick. Keep adhesive about 1" from edge of Temlok units and allow 5 spots per sq. ft. of Temlok material. On units 12" wide or wider daub an additional row of spots near center. Place Temlok De Luxe against surface 1 in. from final position and slide into place under pressure. With large Temlok De Luxe units, plumb every third unit.

Furred Surfaces. Apply Armstrong's Adhesive either on the back of Temlok De Luxe units or, on walls, directly on face of furring strips. After sliding material in place, spots should nearly cover the furring strips. Avoid forcing adhesive through joints between units.▲

NAILING

Facenailing. Used ordinarily only on Temlok De Luxe Boards. Nail first to intermediate studs or furring strips with fine finishing nails driven at an angle 6" apart and about 1" longer than thickness of Temlok De Luxe. Nail

heads should be countersunk. To avoid nail marks, Temlok De Luxe Boards may be cemented to intermediate studs. Nail around units at least $\frac{3}{8}$ " away from edges, using 8d common nails on $\frac{3}{4}$ " and 1" material and 6d common nails on $\frac{1}{2}$ " material, spaced 4" apart. Joint battens can be cemented with Armstrong's Adhesive or secured with finishing nails set at an angle and driven through Temlok to penetrate supports about 1 in. Planks on furred surfaces may be facenailed at top and bottom if moulding or base-board will concealed nailing.

Toenailing—Used to Supplement Adhesive. Units may be secured with one or two nails concealed in beveled joint.

(*) Furring strips on both walls and ceilings should be well-seasoned, straight lumber, 1" x 4" for 12" and 16" centering and 1" x 3" for 6" and 8" centering. Centering of 16" is not recommended except for installation of Temlok De Luxe Boards. For large units of Temlok De Luxe for installation with vertical jointing, furring strips should be set horizontally. For horizontally jointing or application of smaller units, set furring strips vertically. For most satisfactory installation of Temlok De Luxe Panels or Planks, furring strips should be set 6" or 8" o.c.

▲ $\frac{3}{8}$ " Gypsum lath is a satisfactory base for cementing Temlok De Luxe and may be used in place of furring strips.

ARMSTRONG'S TEMLOK FOR ROOF INSULATION

The following specifications are intended to include only the labor and material required for insulation and do not include roofing, roof boards, steel decks, or concrete work. The specifications for the work of other trades occurring in conjunction with the insulation should be worded to provide for the following:

1. Roofing—Built-up Roofing—Built-up roofing is applied directly to the surface of insulation and the application of both should go forward at the same time. The first layer of roofing should be cemented to the insulation with asphalt or pitch. No insulated areas should be left exposed overnight. When the insulation cannot be covered by the roofing contractor the same day as laid, the roofing specifications should provide that the roofing contractor shall cover the insulation temporarily to protect it from the elements.

2. Concrete Work—Roof Slabs—Insulation on Top—The roof slabs should be left reasonably smooth and even for proper installation of insulation.

3. Carpenter Work—The specifications should explicitly require the carpenter contractor to make sure that all roof boards are securely nailed in place. The roof deck should be reasonably smooth and even, without high joints between boards.

4. Steel—The outside surfaces of the steel roof deck sheets are painted with asphalt paint at the factory. After the sheets are erected, any bare spots should be recoated with asphaltic paint by the erecting contractor.

GENERAL

Before the application on the top of roof construction, the roof must be free from all moisture, loose material, and dirt. The contractor who builds the roof deck shall remove all rubbish, etc., from the roof and sweep the surface clean.

Armstrong's Temlok Insulation shall be cut to fit in a workmanlike manner around the penthouse, parapet, fire walls, vent pipes, ventilators, skylights, etc. All outer exposed edges of insulation, as at open eaves or open gable ends or any edge which comes in contact with vertical parapet wall, should be sealed with a strip of felt laid in asphalt or pitch. All cant strips used shall be installed over the insulation.

Insulation should be isolated in areas not greater than thirty feet square in each direction over entire roof at all outside edges, and three feet back from all parapet walls or borders by a seal course of felt bonded to top of insulation and roof deck with asphalt or pitch.

1. Specifications for Armstrong's Temlok on Concrete, Concrete Tile, and Steel Roof Decks—The concrete deck shall first be given a uniform mopping of asphalt or pitch, into which, while hot (), thickness of (") Armstrong's Temlok shall be embedded. If asphalt is used in connection with the installation, an asphalt primer shall be used to insure proper bonding to the roof slab. Not less than thirty-five pounds of asphalt or pitch shall be used per square per mopping. Where the slope of a roof deck is in excess of 3" to the foot, provision must be made for nailing of insulation by setting wood nailing strips, preferably creosoted, into deck on not over 3' centers and running parallel to slope. Each board shall be placed close to the adjoining board and the edges of the boards shall be sealed with the asphalt or pitch when set in place. Where the work is stopped at the end of the day, all edges shall be protected and properly sealed off so that no water can get under the seal. This seal shall be drawn down tightly over the edges of the insulation so that it will not be necessary to break it when work is resumed.

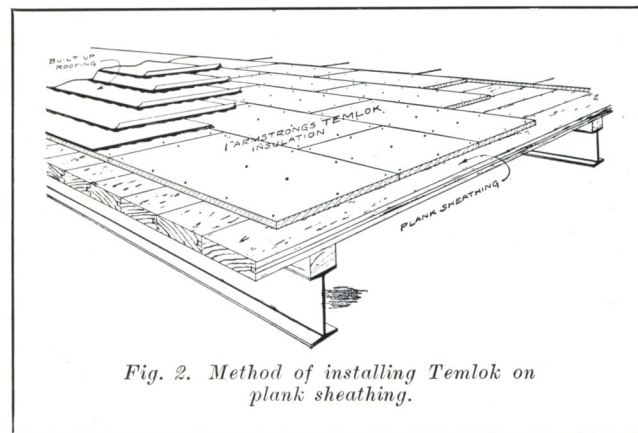
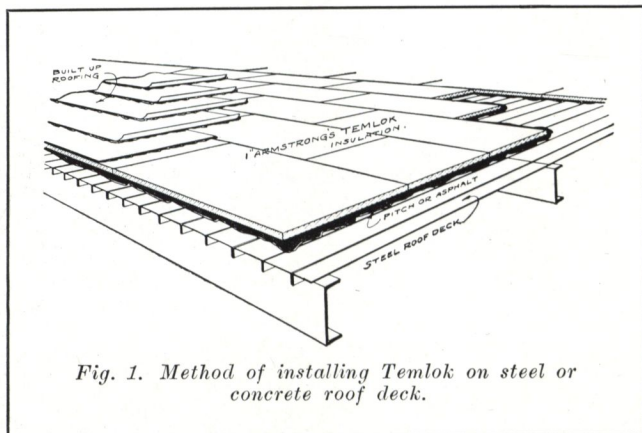
On roof decks where condensation is a problem or where insulation is laid over a freshly poured concrete or wet deck, it is essential that a seal be applied consisting of Armstrong's Asphalt Sheetting or not less than 14- or 15-pound saturated felt, lapped 2 inches, and laid between two solid coats of hot asphalt or coal-tar pitch, this seal course to be carried up on all walls, curbs, and other projections 3 inches above the top of the insulation.

2. Specifications for Temlok on Wood Decks—Where there will be danger of the roofing compound's dripping through the deck it shall be covered first with a sheet of rosin-sized paper before installing Armstrong's Temlok.

On the wood deck () thicknesses of (") Armstrong's Temlok shall be nailed in place. The insulating boards shall be placed close together and secured to flat or sloped roof decks by nailing with (") galvanized nails with shank $\frac{3}{4}$ " longer than thickness of board insulation used approximately 12" on centers both through the center and around the edge of each board.

On roof decks where condensation is a problem, it is essential that a seal be applied consisting of not less than 14- or 15-pound saturated felt, lapped 2 inches, and laid between two solid coats of hot asphalt or coal-tar pitch, this seal course to be carried up on all walls, curbs, and other projections 3 inches above the top of the insulation.

Temlok Roof Insulation is sold through roofing contractors.



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